THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	
Inventors: Christopher MARTIN	: Confirmation No. 3785
	:
U.S. Patent Application No. 10/783,031	: Group Art Unit: 2182
	:
Filed: February 23, 2004	: Examiner: Aurangzeb HASSAN
For: DATA STORAGE DRIVE AND METHOD EMPLOYING DATA COMPRESSION	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

BRIEF ON APPEAL

Further to the Notice of Appeal filed November 12, 2007 and the Notice of Panel Decision from Pre-Appeal Brief Review mailed December 20, 2007, in connection with the above-identified application on appeal, herewith is Appellant's Brief on Appeal. The Commissioner is authorized to charge Deposit Account No. 08-2025 in the amount of $500 for the statutory fee.

To the extent necessary, Appellant hereby requests any required extension of time under 37 C.F.R. §1.136 and hereby authorizes the Commissioner to charge any required fees not otherwise provided for to Deposit Account No. 08-2025.

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I. Real Party in Interest

The real party in interest is Hewlett-Packard Development Company, L.P., a Texas limited partnership.

II. Related Appeals and Interferences

There are no related appeals and/or interferences.

III. Status of Claims

A. Total Number of Claims in Application

1. There are a total of 36 claims in the application, which are identified as claims 1-36.

B. Status of all the claims

1. Claims canceled – None
2. Claims withdrawn from consideration but not canceled – 1-21, 28, and 30-36
3. Claims pending – 22-27 and 29
4. Claims allowed – None
5. Claims rejected – 22-27 and 29

C. Claims on Appeal

1. Claims on appeal are claims 22-27 and 29

IV. Status of Amendments

The amendments to the claims, presented in Appellant's Amendment filed May 18, 2007, in response to the Final Office Action of March 21, 2007, and maintained in the

Advisory Action of June 6, 2007 and the Notice of Panel Decision from the Pre Appeal Brief Review issued December 20, 2007, have been entered..

V. Summary of Claimed Subject Matter

Based upon the specification and Figs. 1-8, Appellant's claim 22 recites a tape drive (500) unit comprising:

> a data compression engine (502) configured to selectively apply compression to an incoming data stream and output a compressed data stream, (*see* page 12, lines 11-14);
>
> a buffer memory (503) configured to store said compressed data stream, (*see* page 12, line 14);
>
> a monitoring element (601) configured to monitor a data occupancy level of said buffer memory configured to store said compressed data stream, (*see* page 13, line 20); and
>
> a control element (602) configured to disable said data compression engine based upon a predetermined level of the data occupancy level of the buffer memory, (*see* page 14, lines 29-31).

In addition, Appellant's claim 25 recites a data processing device (500) comprising:

> a data compression engine (502) configured to selectively apply compression to an incoming data stream and output a compressed data stream, (*see* page 12, lines 11-14); and
>
> a buffer memory (503) configured to store said compressed data stream, (*see* page 12, line 14);
>
> wherein said device (500) is configured to disable said data compression engine in response to a data occupancy level of said buffer memory storing compressed data, wherein the data occupancy level is below a predetermined level, (*see* page 14, lines 29-31).

Further still, Appellant's claim 27 recites a data processing device (500) comprising:

> means (data compression engine 502) for applying compression to an incoming data stream and generating a compressed data stream, (*see* page 12, lines 11-14); and
>
> means for storing data of said compressed data stream (buffer memory 503), (*see* page 12, line 14);
>
> wherein said data processing device (500) is configured to disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level, (*see* page 14, line 29 – page 15, line 21).

Still further, claim 29 recites a memory storing program instructions (507), (*see* page 12, lines 21-26), for causing a data processor (506) to:

> monitor a data occupancy level of a buffer memory receiving a compressed data stream, (*see* page 13, line 20); and
>
> disable a data compressor outputting the compressed data stream in response to said data occupancy level of said buffer memory being below a predetermined level, (*see* page 14, line 29 – page 15, line 21).

VI. Grounds of Rejection to be Reviewed on Appeal

A. The combination of U.S. Patent No. 6,069,763 to Aoki in view of Appellant's Admitted Prior Art ("AAPA"), i.e., paragraph [0011] of the Applicant's Patent Application Publication 20040179284, does not render claims 22-27 and 29 obvious under 35 U.S.C. §103(a).

B. A first Appellant's Admitted Prior Art ("AAPA4") represented in Fig. 4 in combination with a second Appellant's Admitted Prior Art embodiment represented in Figs. 2 and 3 ("AAPA23"), do not render obvious claims 22-27 and 29 under 35 U.S.C. §103(a).

VII. Argument

A. Claim 22 is patentable under 35 U.S.C. §103(a)

The combination of Aoki in view of AAPA does not render claim 22 obvious

Appellant respectfully submits that the asserted combination of Aoki and AAPA does not teach or suggest all of the elements of claim 22.

Independent claim 22 recites, *inter alia*, a tape drive unit, comprising a data compressor engine configured to apply compression to an incoming data stream and outputting the compressed data stream to "a buffer memory configured to store said compressed data stream." Unlike Appellant's device that stores data already compressed in the memory buffer, Aoki, on the other hand, at column 4 lines 26-37, only discloses wherein uncompressed data stored in memory buffer 1 is written into memory 41. Nowhere does Aoki disclose FIFO memory 41 receiving compressed data, as recited in claim 22.

Furthermore, as illustrated in Fig. 1A, memory 1 directly feeds FIFO memory 41, and output b, of FIFO memory 41 feeds tape recorder amplifier 7, of Fig. 2. Appellant respectfully submits that Aoki only discloses data compression being performed when data output from memory 41 is amplified and placed on tape 10 by rotary head displacement control mechanism 5 and tape speed control 33. Based upon Figs. 1A and 1B, Appellant submits that Aoki provides no suggestion or motivation to store compressed data in memory 41.

Independent claim 22 further recites, "a monitoring element configured to monitor a data occupancy level of said buffer memory configured to store said compressed data stream." Appellant respectfully submits that the Examiner incorrectly asserts that Aoki discloses a speed sensing mechanism at column 6, lines 1-5, and a residual amount sensing mechanism 2, at column 4, lines 18-25, that renders obvious the Appellant's monitoring element. Indeed, because Aoki fails to disclose storing compressed data in memory 41, Aoki similarly fails to "a monitoring element configured to monitor a data occupancy level of said buffer memory configured to store said compressed data stream," as recited in claim 22. Indeed, except for storing compressed data on tape, Aoki fails to disclose, teach, or suggest storing compressed data.

Appellant further submits that Aoki appears to discloses wherein residual amount sensing mechanism 2 monitors memory 1, and not memory 41. The Examiner appears to assert that memory 41 corresponds to Appellant's recited "buffer memory configured to store said compressed data stream." However, notwithstanding the fact that memory 41 does not store compressed data, Aoki fails to disclose, teach, or suggest monitoring the amount of data stored in memory 41, as recited by Applicant.

Still further, Appellant submits that Aoki fails to disclose, teach, or suggest "a control element configured to disable said data compression engine based upon a predetermined level of the data occupancy level of the buffer memory," as recited in claim 22. The Examiner asserts that Aoki, at column 1, line 59 - column 2, line 15, discloses the Appellant's control element. Appellant respectfully disagrees and

submits that this passage only provides background knowledge of tape drive systems that transfer data to tape at variable rates. The passage does not discuss compression, and fails to disclose the Appellant's control element that disables data compression.

Furthermore, the Examiner admits that Aoki does not explicitly disclose a monitoring element to monitor the buffer comprising the compressed data, and relies upon AAPA, paragraph [0011] of the published patent application, to remedy the deficiencies of Aoki. Appellant respectfully disagrees and submits that the data buffer illustrated in Fig. 2 does not store compressed data and paragraph [0012] of the AAPA only discloses wherein occupancy level 201 is used as a control signal for determining tape speed past a tape head. Accordingly, the device illustrated in Fig. 2 does not suggest the claimed monitoring element configured to monitor a buffer storing compressed data.

Based upon the remarks presented above, Appellant respectfully submits that the asserted combination of Aoki and AAPA fails to suggest to one of ordinary skill in the art, a monitoring element configured to monitor a buffer having compressed data, as recited in claim 22.

The combination of AAPA4 in view of AAPA23 does not render claim 22 obvious

The Examiner asserts that AAPA4, i.e., the tape drive unit illustrated in Appellant's Fig. 4, teaches wherein tape drive unit 403, comprising data compression engine 404, is configured to selectively apply compression to an incoming data stream 402. Appellant respectively disagrees and submits that simply applying compression as taught by AAPA4 is distinguished from "selectively" applying compression, as recited in claim 22. Unlike AAPA4, Appellant's claimed compression engine is "configured to disable said data compression engine based upon a predetermined level of the data occupancy level of the buffer memory." Appellant respectfully submits, therefore, that AAPA4 fails to disclose at least this feature of claim 22.

In addition, the Examiner admits that AAPA4 fails to explicitly disclose the monitoring and control element claimed by Appellant and relies on Figs. 2 and 3, ("AAPA23") to remedy the deficiencies of AAPA4. Appellant respectfully disagrees, and submits that AAPA23 only discloses monitoring a buffer to control the output of data from that buffer, and not to control disabling the compression based upon a determined data level of the buffer, as recited in claim 22.

Applicants respectfully submit that neither AAPA4 nor AAPA23 suggest the desirability of a feedback mechanism that monitors the level of compressed data in a buffer and based upon a predetermined level of data in that buffer disables the compression of data entering that buffer.

Accordingly, it is respectfully submitted that the Appellant's data compression engine is patentable over the combination of AAPA4 and AAPA23.

B. Claim 25 is patentable under 35 U.S.C. §103(a)

The combination of Aoki in view of AAPA does not render claim 22 obvious

Appellant respectfully submits that the asserted combination of Aoki and AAPA does not teach or suggest all of elements of independent claim 25.

Claim 25 recites, *inter alia*, a data processing device, comprising a data compressor engine configured to "selectively apply compression to an incoming data stream and output a compressed data stream" to "a buffer memory configured to store said compressed data stream." Independent claim 25 further recites "wherein said device is configured to disable said data compression engine in response to a data occupancy level of said buffer memory storing compressed data, wherein the data occupancy level is below a predetermined level." Aoki fails to disclose either of these features.

Unlike Appellant's buffer memory that receives compressed data, Aoki, at column 4 lines 26-37, only discloses wherein uncompressed data stored in memory

buffer 1 is written into memory 41. Nowhere does Aoki disclose FIFO memory 41 receiving compressed data, as recited in claim 22.

Furthermore, as Aoki illustrates in Fig. 1A, memory 1 directly feeds FIFO memory 41, and FIFO memory output b feeds tape recorder amplifier 7, of Fig. 2. Appellant respectfully submits that the only data compression disclosed is done on tape 10 when data output from memory 41 is amplified and placed on tape 10 by rotary head displacement control mechanism 5 and tape speed control 33. Based upon Figs. 1A and 1B, Appellant further submits that Aoki provides no suggestion or motivation to store compressed data in memory 41. Accordingly, Appellant's device is distinguished from that of Aoki.

Appellant further submits that because Aoki fails to disclose storing compressed data in memory 41, Aoki similarly fails to suggest being "configured to disable said data compression engine in response to a data occupancy level of said buffer memory storing compressed data, wherein the data occupancy level is below a predetermined level," as recited in claim 25.

Based upon the remarks presented above, Appellant respectfully submits that the asserted combination of Aoki and AAPA fails to suggest, to one of ordinary skill in the art, a monitoring element configured to monitor a buffer having compressed data, as recited in claim 25.

The combination of AAPA4 in view of AAPA23 does not render claim 25 obvious

The Examiner asserts that Appellant's Fig. 4, i.e., AAPA4, teaches a tape drive unit (403) comprising a data compression engine (404) configured to "selectively apply compression to an incoming data stream," as recited in claim 25. Appellant respectively disagrees and submits that simply applying compression as taught by AAPA4 is distinguished from "selectively" applying compression, as recited by the Appellant. Nowhere does the AAPA4 disclose or suggest being configured "to disable said data compression engine in response to a data occupancy level of said buffer memory storing compressed data, wherein the data occupancy level is below a

predetermined level." Appellant respectfully submits, therefore, that AAPA4 fails to disclose at least this feature of claim 22.

Accordingly, it is respectfully submitted that the Appellant's data compression engine recited in claim 25 is patentable over the combination of AAPA4 and AAPA23.

C. Claim 27 is patentable under 35 U.S.C. §103(a)

The combination of Aoki in view of AAPA does not render claim 27 obvious

Appellant respectfully submits that the asserted combination of Aoki and AAPA does not teach or suggest all of the elements of independent claim 27.

Claim 27 recites, *inter alia*, data processing device comprising data compression means, "wherein the data processing device is configured to disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level." The asserted combination of Aoki and AAPA fail to disclose, teach, or suggest at least this feature.

Aoki, at column 4 lines 26-37, appears to only disclose wherein uncompressed data is written into memory 41. Nowhere does Aoki suggest storing compressed data in FIFO memory 41, let alone a means for storing compressed data in FIFO memory 41.

Indeed, Aoki's Fig. 1A illustrates wherein memory 1 directly feeds FIFO memory 41, and output b, of FIFO memory 41 feeds tape recorder amplifier 7, of Fig. 2. Appellant respectfully submits that data compression is only performed when data, output from memory 41, is amplified and placed on tape 10 by rotary head displacement control mechanism 5 and tape speed control 33. Based upon Figs. 1A and 1B, Appellant respectfully submits that Aoki neither discloses, nor provides motivation to store compressed data in memory 41. Accordingly, Appellant's device is distinguished from that of Aoki.

Independent claim 27 further recites, "wherein said data processing device is configured to disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level." Because Aoki fails to disclose storing compressed data, Appellant respectfully submits that Aoki similarly fails to disclose, teach, or suggest wherein the data processing device is configured to "disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level."

Furthermore, notwithstanding the assertions of the Examiner, the AAPA similarly fails to disclose, teach, or suggest storing of compressed data in a data buffer. Appellant respectfully submits that the data buffer illustrated in Fig. 2, i.e., AAPA, only illustrates storing buffer 200 with data from a host and then writing the data to tape. Nowhere does AAPA disclose storing compressed data in buffer 200.

Based upon the remarks presented above, Applicant respectfully submits that claim 27 is patentable due to the failure of Aoki and AAPA to disclose, teach or motivate all recited features of claim 27.

The combination of AAPA4 in view of AAPA23 does not render claim 27 obvious

Similar to the argument presented above, Applicant respectfully submits that the tape drive unit 403 illustrated in Appellant's Fig. 4, only discloses applying compression and nowhere teaches a mechanism wherein "the data processing device is configured to disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level."

Appellant similarly submits that AAPA23 only discloses monitoring a buffer to control the output of data from that buffer, and fails to disclose being configured to control disabling the compression based upon a determined data level of the buffer, as recited in claim 27.

Applicants respectfully submit that neither AAPA4 nor AAPA23 suggest the desirability of a feedback mechanism that monitors the level of compressed data in a buffer and based upon a predetermined level of data in that buffer disables the compression of data entering that buffer.

Accordingly, the data processing device recited in claim 27 is patentable over the combination of AAPA4 and AAPA23.

D. Claim 29 is patentable under 35 U.S.C. §103(a)

Neither the combination of Aoki and AAPA, nor the combination of AAPA4 and AAPA23, renders claim 29 obvious under 35 U.S.C. §103(a)

Claim 29 recites, *inter alia*, a tape drive unit, comprising a data compressor engine configured to memory storing program instructions for causing a data processor to "monitor a data occupancy level of a buffer memory receiving a compressed data stream." Appellant respectfully submits that the asserted combination of applied references fails to disclose, teach, or suggest a buffer memory receiving compressed data, let alone monitoring a data occupancy level of that compressed data receiving buffer.

For example, Aoki, at column 4 lines 26-37, appears to only disclose wherein uncompressed data stored in memory buffer 1 is written into memory 41.

Furthermore, as illustrated in Fig. 1A, memory 1 directly feeds FIFO memory 41, and output b, of FIFO memory 41 feeds tape recorder amplifier 7, of Fig. 2. Appellant respectfully submits that data compression is only performed when data output from memory 41, is amplified and placed on tape 10 by rotary head displacement control mechanism 5 and tape speed control 33. Based upon Figs. 1A and 1B, Appellant submits that Aoki provides no suggestion or motivation to store compressed data in memory 41.

Claim 29 further recites wherein the stored instructions cause the data processor "to disable a data compressor outputting the compressed data stream in response to said data occupancy level of said buffer memory being below a predetermined level." Appellant submits that because Aoki fails to disclose storing compressed data in memory 41, Aoki similarly fails to disclose this feature.

In a similar fashion, the AAPA, AAPA23, and AAPA4 fail to disclose either "monitoring a data occupancy level of a buffer memory receiving a compressed data stream" or instructions for causing the data processor to "disable a data compressor outputting the compressed data stream in response to said data occupancy level of said buffer memory being below a predetermined level."

More specifically, Appellant respectfully submits that AAPA23, i.e., Figs. 2 and 3, only discloses monitoring a buffer to control the output of data from that buffer, and not to control disabling the compression based upon a determined data level of the buffer, as recited in claim 29.

Therefore, Applicant respectfully submits that neither Aoki, AAPA, AAPA23, nor AAPA4 suggests the desirability of a feedback mechanism that monitors the level of compressed data in a buffer and based upon a predetermined level of data in that buffer disables the compression of data entering that buffer.

Accordingly, it is respectfully submitted that claim 29 is patentable over all allowable combinations of Aoki, AAPA, AAPA4, and AAPA23.

E. Claims 23, 24, and 26 are patentable under 35 U.S.C. §103(a)

Dependent claims 23, 24, and 26 depend variously from independent claims 22 and 25 and are likewise patentable over the asserted combination of references for at least their dependence on an allowable base claim, as well as for the additional features they recite. Reconsideration and reversal of the rejections under 35 U.S.C. §103(a) is courteously solicited.

F. Conclusion

Accordingly, Appellant respectfully submits that the rejection of claims 22-27, and 29 are in error, and request that the final rejection be reversed.

Respectfully submitted,

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VIII. Claims Appendix

22. A tape drive unit comprising:

a data compression engine configured to selectively apply compression to an incoming data stream and output a compressed data stream;

a buffer memory configured to store said compressed data stream;

a monitoring element configured to monitor a data occupancy level of said buffer memory configured to store said compressed data stream; and

a control element configured to disable said data compression engine based upon a predetermined level of the data occupancy level of the buffer memory.

23. The tape drive unit as claimed in claim 22, comprising:

a tape transport mechanism for transporting a tape data storage medium past a transducer;

wherein said tape transport mechanism continues streaming of said tape, whilst said data compression engine is in an enabled mode, and whilst said compression engine is in a disabled mode.

24. The tape drive unit as claimed in claim 22, comprising:

a tape transport mechanism configured to transport a tape data storage medium past a transducer; and

a tape speed control element configured to control said tape transport mechanism for transporting said tape at a variable speed;

wherein said tape speed is variable according to a data occupancy level of said buffer memory.

25. A data processing device comprising:

a data compression engine configured to selectively apply compression to an incoming data stream and output a compressed data stream; and

a buffer memory configured to store said compressed data stream;

wherein said device is configured to disable said data compression engine in response to a data occupancy level of said buffer memory storing compressed data, wherein the data occupancy level is below a predetermined level.

26. The data processing device as claimed in claim 25, further comprising:

a monitoring element configured to monitor the data occupancy level of said buffer memory; and

a control element configured to enable or disable said data compression engine in response to an indication of monitored data occupancy level of said buffer memory derived by the monitoring element.

27. A data processing device comprising:

means for applying compression to an incoming data stream and generating a compressed data stream; and

means for storing data of said compressed data stream;

wherein said data processing device is configured to disable the data compression means in response to a data occupancy level of the means for storing data of the compressed data stream being below a predetermined level.

29. A memory storing program instructions for causing a data processor to:

monitor a data occupancy level of a buffer memory receiving a compressed data stream; and

disable a data compressor outputting the compressed data stream in response to said data occupancy level of said buffer memory being below a predetermined level.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.